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PO Box 828  
Bloomfield Hills, MI 48303

EXAMINER
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WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/890,548

Applicant(s)

LOH, PENG CHUM

Examiner

Harry D Wilkins, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

1. Claims 1-6, 8-11 and 13-15 are presently pending.
2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
3. The objections to the specification and claims of the previous Office Action have been withdrawn, however, new objections are contained below.

#### ***Specification***

4. The disclosure is objected to because of the following informalities: throughout the specification, "Au<sub>3</sub>Al" is referenced as being at 21.5 wt% Al. However, as can be seen from the binary phase diagram on page 446 of *Precious Metals* the composition at 21.5 wt% is actually AuAl<sub>2</sub>. Appropriate correction is required.

#### ***Claim Objections***

5. Claims 2 and 3 are objected to because of the following informalities: in these claims, "Au<sub>3</sub>Al" is referenced, which as defined by claim 2 to be at 21.5 wt% Al. However, as can be seen from the binary phase diagram on page 446 of *Precious Metals* the composition at 21.5 wt% is actually AuAl<sub>2</sub>. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102/103***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 10 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over *Precious Metals*.

*Precious Metals* teaches (see pages 443-444 and 446-447) that gold-aluminum binary alloys were well known, and that when the aluminum content was greater than 15 wt% and up to 21.5 wt% (the  $\text{AuAl}_2$  intermetallic), the alloy had a violet (purple) color.

The reason for this being a 102/103 rejection is a matter of interpretation. The difference is how one interprets the disclosure of *Precious Metals* in the sentence spanning pages 443 and 444, specifically "...when aluminum content increases, the alloy becomes whitish with a violet color appearing when aluminum reaches 15%, the violet color becoming strong when the composition *approaches*  $\text{AuAl}_2$ ." [emphasis added]

If one interprets "approaches" to mean "to come very near to", this means that *Precious Metals* discloses a data point that is just below the  $\text{AuAl}_2$  value (which is 21.5 wt% Al and a Au/Al ratio of 3.65). This data point would be between 16.5 and 21.5 wt% Al, and have an Au/Al ratio of at least 3.66. Therefore, *Precious Metals* anticipates the presently claimed range.

If one does not interpret "approaches" as above, then *Precious Metals* teaches a broad range of 15-21.5 wt% (where the end point has a Au/Al ratio of 3.65). However, it

would have been within the expected skill of a routineer in the art to have selected a composition within this broad range in order to optimize the final violet color of the alloy.

Regarding claims 2 and 3, while *Precious Metals* is silent as to the hardness of the Au-Al alloy, the composition of *Precious Metals* is the same as the presently claimed composition. Therefore, one of ordinary skill in the art would have expected the alloy to inherently have the same hardness as claimed.

Regarding claim 4, since the alloy of *Precious Metals* is a binary alloy, it consists of Au and Al as claimed. The range of claim 4, corresponds directly to the range of Al in claim 1, thus the reasons are the same for rejecting the ranges.

Regarding claims 10 and 11, *Precious Metals* teaches (see page 443) that the violet-gold alloys (Au-Al alloys) were used in jewelry and ornamental pieces.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-4, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi (JP 59-093847).

Regarding claim 1, Takiguchi teaches (see English abstract) a purple colored Au-Al alloy for jewelry that contains 15-30 wt% Al with the remainder being Au. It would have been within the expected skill of a routineer in the art to have optimized the amount of Al present within the broad range of Takiguchi. Where the general conditions

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of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See *In re Aller*, 220 F.2d 454 456, 105 USPQ 233, 235 (CCPA 1955). Where Applicant's range covers such a large portion of the prior art range, it has been held to be obvious to find Applicant's claimed ranges through optimization, especially in view of there being ranges of composition wherein the color of the alloy is only present for certain compositions. In addition, the subjective standard utilized by Applicant to determine the acceptability of the alloy composition blurs the line of where the cut off point of the present invention actually lies. Applicant has not described how tough the alloy is required to be to be considered adequate. Without further defining the standards used, one of ordinary skill in the art is unaware as to exactly where the change in toughness from unacceptable to acceptable is. Thus, it is only routine experimentation to find the best value for a desired property within the broad range of the prior art.

While Applicant has attempted to demonstrate unexpected results to rebut the *prima facie* case of obviousness, the Examiner finds the evidence unconvincing. Particularly, no factual basis is provided for determining what makes an alloy "unacceptable" in performance and what makes an alloy "acceptable". In addition, Applicant's claimed range includes values of Au:Al of as low as 3.66, however, the purported data only provides values as low as 3.85, and only as low as 4.25 with Au and Al alone. The comparison data at an Au:Al of 3.65 provides unsatisfactory performance, thus, there is no evidence that only within the claimed range are unexpected results produced. A showing of unexpected results should be

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commensurate in scope with the claimed range and reasonably show the entire claimed range. See MPEP 716.02(d). Thus, the *prima facie* case of obviousness has not been rebutted.

Regarding claims 2 and 3, while Takiguchi is silent as to the hardness of the Au-Al alloy, the composition of Takiguchi is the same as the presently claimed composition. Therefore, one of ordinary skill in the art would have expected the alloy to have the same hardness as claimed.

Regarding claim 4, Takiguchi discloses an alloy which contains 70-85 wt% Au, which contains the presently claimed range. It would have been within the expected skill of a routineer in the art to have optimized the content of Au in the alloy of Takiguchi. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Regarding claim 10 (depends from 1), Takiguchi teaches (see English abstract) making articles from the alloy.

Regarding claim 11 (depends from 10), Takiguchi teaches (see English abstract) making ornamental jewelry articles from the alloy.

11. Claims 5, 6, 8, 9 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Precious Metals* in view of Miyama (JP 62-240729).

The teachings of *Precious Metals* are described above.

However, *Precious Metals* fails to teach adding one or both of Ni and Pd to the alloy.

Miyama teach (see English abstract) a purple colored Au-Al powder metallurgy alloy for jewelry that contains 17-30 wt% Al, 7-30 wt% Ni, Co or Pd and the rest Au. However, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade.

Therefore, it would have been obvious to one of ordinary skill in the art to have added Ni and/or Pd as taught by Miyama to the alloy of *Precious Metals* for the known purpose of adjusting the color of the alloy to a desired shade. It also would have been within the expected skill of a routineer in the art to have only added as much Ni and/or Pd as was needed to achieve the final desired color, such as less than 2 wt% or less than 4 wt%, respectively, as claimed. One of ordinary skill in the art would have been led to maintain the ratio of Au to Al when adding additional elements in order to not upset the balance of intermetallic phases present in the alloy of *Precious Metals*.

Regarding the fact that Miyama teaches a powder metallurgy alloy, one of ordinary skill in the art would have expected the Ni and/or Pd to have the same effect upon the alloy whether it was added into a cast article or a powder metallurgy article.

Regarding claim 6, as above, either *Precious Metals* teaches the presently claimed range of Al or it would have been within the expected skill of a routineer in the art to have optimized the content of Al within the broad range of *Precious Metals*. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Regarding claims 8 and 9, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired



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shade. Therefore, it would have been obvious to one of ordinary skill in the art to have added an amount of Ni or Pd below 7 wt% in order to achieve a different desired color, such as by reducing the Ni or Pd to 1-2 wt% or 0.5-4 wt%, respectively, as claimed. It is well settled that omission of an element and its function where not needed is obvious.

*Ex parte Rainu*, 168 USPQ 375 (PTO Bd. App. 1969) and *In re Karlson*, 136 USPQ 184 (CCPA 1963).

Regarding claim 13, Miyama teach (see English abstract) a purple colored Au-Al alloy for jewelry that contains 7-30 wt% Ni, Co or Pd. Thus, Miyama fail to meet the claimed range of Ni or Pd. However, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade. Therefore, it would have been obvious to one of ordinary skill in the art to have reduced the amount of Ni or Pd added below 7 wt% in order to achieve a different desired color, such as by reducing the Ni or Pd to 0-2 wt% or 0-4 wt%, respectively, as claimed. It is well settled that omission of an element and its function where not needed is obvious. *Ex parte Rainu*, 168 USPQ 375 (PTO Bd. App. 1969) and *In re Karlson*, 136 USPQ 184 (CCPA 1963).

Regarding claims 14 and 15, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade. Therefore, it would have been obvious to one of ordinary skill in the art to have reduced the amount of Ni or Pd added below 7 wt% in order to achieve a different desired color, such as by reducing the Ni or Pd to 1-2 wt% or 0.5-4 wt%, respectively, as claimed. It is well settled that omission of an element and its function

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where not needed is obvious. *Ex parte Rainu*, 168 USPQ 375 (PTO Bd. App. 1969) and *In re Karlson*, 136 USPQ 184 (CCPA 1963).

12. Claims 5, 6, 8, 9 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi (JP 59-093847) in view of Miyama (JP 62-240729).

The teachings of Takiguchi are described above.

However, Takiguchi fails to teach adding one or both of Ni and Pd to the alloy.

Miyama teach (see English abstract) a purple colored Au-Al powder metallurgy alloy for jewelry that contains 17-30 wt% Al, 7-30 wt% Ni, Co or Pd and the rest Au. However, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade.

Therefore, it would have been obvious to one of ordinary skill in the art to have added Ni and/or Pd as taught by Miyama to the alloy of Takiguchi for the known purpose of adjusting the color of the alloy to a desired shade. It also would have been within the expected skill of a routineer in the art to have only added as much Ni and/or Pd as was needed to achieve the final desired color, such as less than 2 wt% or less than 4 wt%, respectively, as claimed. One of ordinary skill in the art would have been led to maintain the ratio of Au to Al when adding additional elements in order to not upset the balance of intermetallic phases present in the alloy of Takiguchi.

Regarding the fact that Miyama teaches a powder metallurgy alloy, one of ordinary skill in the art would have expected the Ni and/or Pd to have the same effect upon the alloy whether it was added into a cast article or a powder metallurgy article.

Regarding claim 6, as above, it would have been within the expected skill of a routineer in the art to have optimized the content of Al within the broad range of Takiguchi. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Regarding claims 8 and 9, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade. Therefore, it would have been obvious to one of ordinary skill in the art to have added an amount of Ni or Pd below 7 wt% in order to achieve a different desired color, such as by reducing the Ni or Pd to 1-2 wt% or 0.5-4 wt%, respectively, as claimed. It is well settled that omission of an element and its function where not needed is obvious. *Ex parte Rainu*, 168 USPQ 375 (PTO Bd. App. 1969) and *In re Karlson*, 136 USPQ 184 (CCPA 1963).

Regarding claim 13, Miyama teach (see English abstract) a purple colored Au-Al alloy for jewelry that contains 7-30 wt% Ni, Co or Pd. Thus, Miyama fail to meet the claimed range of Ni or Pd. However, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade. Therefore, it would have been obvious to one of ordinary skill in the art to have reduced the amount of Ni or Pd added below 7 wt% in order to achieve a different desired color, such as by reducing the Ni or Pd to 0-2 wt% or 0-4 wt%, respectively, as claimed. It is well settled that omission of an element and its function where not needed is obvious. *Ex parte Rainu*, 168 USPQ 375 (PTO Bd. App. 1969) and *In re Karlson*, 136 USPQ 184 (CCPA 1963).

Regarding claims 14 and 15, Miyama teaches (col. 2, lines 1-5, orally translated by USPTO) that the function of Ni and Pd was to adjust the color of the alloy to a desired shade. Therefore, it would have been obvious to one of ordinary skill in the art to have reduced the amount of Ni or Pd added below 7 wt% in order to achieve a different desired color, such as by reducing the Ni or Pd to 1-2 wt% or 0.5-4 wt%, respectively, as claimed. It is well settled that omission of an element and its function where not needed is obvious. *Ex parte Rainu*, 168 USPQ 375 (PTO Bd. App. 1969) and *In re Karlson*, 136 USPQ 184 (CCPA 1963).

#### ***Response to Arguments***

13. Applicant's arguments with respect to claims 1-6, 8-11 and 13-15 have been considered but are moot in view of the new ground(s) of rejection.

In addition, it appears that there was a misunderstanding as to statements in the previous Office Action. When the Examiner posed the statement "It is unclear how, by changing the ratio of Au:Al from 3.65 to 3.66, the properties of the alloy are changed from unsatisfactory to satisfactory", what the Examiner meant was that Applicant has not shown that when the ratio changes from 3.65 to 3.66 the properties of the alloy are changed from unsatisfactory to satisfactory. Thus, Applicant has not demonstrated unexpected results commensurate in scope with the presently claimed range. There was no intention to imply that the theory behind the criticality was needed.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 703-305-9927. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Harry D Wilkins, III  
Examiner  
Art Unit 1742

hdw

ROY KING   
SUPERVISORY PATENT EXAMINER  
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